

CLAIMS

1. A gear bearing system comprising:
a first gear bearing having a plurality of first gear teeth, each of said first gear teeth having a first surface and a second surface; and
a second gear bearing, said second gear bearing operating on said first surface and said second surface of said first gear teeth.
2. The gear bearing system of claim 1, wherein said first surface and said second surface of said first gear teeth are non-parallel.
3. The gear bearing system of claim 2, wherein said first surface of said first gear teeth acts as a bearing and said second surface of said first gear teeth acts as a gear drive.
4. The gear bearing system of claim 3, further comprising a ring bearing, wherein said second gear bearing operates on a first surface and a second surface of said ring bearing.
5. The gear bearing system of claim 4, further comprising a third gear bearing and a fourth gear bearing, said third gear bearing operating on a third surface and a fourth surface of said first gear teeth, and said fourth gear bearing operating on a fifth surface and a sixth surface of said first gear teeth.
6. The gear bearing system of claim 5, wherein said third gear bearing operates on a third surface and a fourth surface of said ring gear, and said fourth gear bearing operates on a fifth surface and a sixth surface of said ring gear.

7. The gear bearing system of claim 6, wherein said third gear bearing further comprises a plurality of third gear teeth, each of said third gear teeth having a first surface and a second surface, said first gear teeth operating on said first surface and said second surface of said third gear teeth.

8. The gear bearing system of claim 7, wherein said fourth gear bearing further comprises a plurality of fourth gear teeth, each of said fourth gear teeth having a first surface and a second surface, said first gear teeth operating on said first surface and said second surface of said fourth gear teeth.

9. The gear bearing system of claim 8, wherein said first gear bearing is a sun gear bearing, and said second, third and fourth gear bearings are planet gear bearings.

10. The gear bearing system of claim 9, wherein said gear bearing system is self-supporting.

11. The gear bearing system of claim 10, further comprising a fifth gear bearing, said second gear bearing operating on a first surface and a second surface of said fifth gear bearing, said third gear bearing operating on a third surface and a fourth surface of said fifth gear bearing, and said fourth gear bearing operating on a fifth surface and a sixth surface of said fifth gear bearing.

12. The gear bearing system of claim 11, wherein said gear bearing system is a transmission system, said first gear bearing is an input sun gear bearing, said fifth gear bearing is an output sun gear bearing, and said first gear bearing has a rotational speed different than a rotational speed of said fifth gear bearing.

13. The gear bearing system of claim 12, wherein said gear bearing system is a transmission system for an electric motor.

14. A gear bearing system comprising:
a first gear bearing, said first gear bearing comprising:
a first central portion having a first central axis; and
a first plurality of teeth extending radially from said first central portion, each of said first plurality of teeth comprising
a first contact point located along a side of said teeth, said first contact point being a first distance from said first central axis; and
a first crown extending from a top of said teeth,
said first crown including a second contact point being substantially the first distance from said first central axis.

15. The gear bearing system of claim 14, wherein said first gear bearing further comprises a first roller portion on top of said first central portion, said first roller portion including a third contact point, wherein said third contact point is substantially the first distance from said central axis.

16. The gear bearing of claim 15, wherein said first gear bearing is rotated about said first central axis, and said first, second and third contact points have substantially equal rotation speeds.

17. The gear bearing system of claim 16, further comprising a second gear bearing in contact with said first gear bearing, said second gear bearing comprising:
a second central portion having a second central axis; and
a second plurality of teeth extending radially from said second central portion, each of

said second plurality of teeth comprising:

a fourth contact point located along a side of said teeth, said fourth contact point being a second distance from said second central axis;

a second crown extending from a top of said teeth, said second crown including a fifth contact point being substantially the second distance from said second central axis; and

a second roller portion on top of said second central portion, said second roller portion including a sixth contact point, wherein said sixth contact point is substantially the second distance from said second central axis.

18. The gear bearing system of claim 17, wherein the first distance is substantially equal to the second distance.

19. The gear bearing system of claim 18, wherein said first contact point contacts said fourth contact point, said second contact point contacts said sixth contact point, and said third contact point contacts said fifth contact point.

19. The gear bearing system of claim 19, wherein said first plurality of teeth includes a first plurality of upper teeth and a first plurality of lower teeth, said first plurality of upper teeth being phase-shifted relative to said first plurality of lower teeth, and said second plurality of teeth includes a second plurality of upper teeth and a second plurality of lower teeth, said second plurality of upper teeth being phase-shifted relative to said second plurality of lower teeth.